Textbook Alignment to the Utah Core – Geometry

This alignment has been completed using an "Independent Alignment Vendor" from the USOE approved list (www.schools.utah.gov/curr/imc/indvendor.html.)   Yes N/A   No N/A

Name of Company and Individual Conducting Alignment:
Ryan Foster

A "Credential Sheet" has been completed on the above company/evaluator and is (Please check one of the following):

X On record with the USOE.

☐ **The "Credential Sheet" is attached to this alignment.**

Instructional Materials Evaluation Criteria (name and grade of the core document used to align): Geometry Core Curriculum

Title: Prentice Hall Mathematics, Geometry © 2009   ISBN#: 0133659488 (SE); 0133659526 (TE);

Publisher: Pearson Education, Inc. publishing as Prentice Hall

Overall percentage of coverage in the *Student Edition (SE) and Teacher Edition (TE)* of the Utah State Core Curriculum: **98%**

Overall percentage of coverage in *ancillary material*s of the Utah Core Curriculum: N/A

STANDARD I: Students will use algebraic, spatial, and logical reasoning to solve geometry problems.

Percentage of coverage in the *student and teacher edition* for Standard I: 96 %	Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard I: N/A

OBJECTIVES & INDICATORS	Coverage in *Student Edition(SE) and Teacher Edition (TE) (pg #'s, etc.)*	Coverage in *llary Material* (titles, pg #'s, etc.)	*Not covered in TE, SE or ancillaries*

Objective 1.1: Use inductive and deductive reasoning to develop mathematical arguments.			
a. Write conditional statements, converses, and inverses, and determine the truth value of these statements.	**SE/TE: 80-86, 117, 120, 280-287, 298-300**		
b. Formulate conjectures using inductive reasoning.	**SE/TE: 4-9, 71, 74**		
c. Prove a statement false by using a counterexample.	**SE/TE: 4-9, 71, 74, 81-86, 117, 120**		
Objective 1.2: Analyze characteristics and properties of angles.			
a. Use accepted geometric notation for lines, segments, rays, angles, similarity, and congruence.	**SE/TE: 16-29, 31, 72, 74, 373-379, 408, 410**		
b. Identify and determine relationships in adjacent, complementary, supplementary, or vertical angles and linear pairs.	**SE/TE: 38-43, 72, 74**		
c. Classify angle pairs formed by two lines and a transversal.	**SE/TE: 38-43, 72, 74**		
d. Prove relationships in angle pairs.	**SE/TE: 38-43, 72, 74**		
e. Prove lines parallel or perpendicular using slope or angle relationships.	**SE/TE: 134-145, 190, 192**		
Objective 1.3: Analyze characteristics and properties of triangles.			
a. Prove congruency and similarity of triangles using postulates and theorems.	**SE/TE: 200-220, 249-250, 252, 382-389, 408, 410**		

b. Prove the Pythagorean Theorem in multiple ways, find missing sides of right triangles using the Pythagorean Theorem, and determine whether a triangle is a right triangle using the converse of the Pythagorean Theorem.	**SE/TE: 416-424, 461, 464**		
c. Prove and apply theorems involving isosceles triangles.	**SE/TE: 228-233, 251-252**		
d. Apply triangle inequality theorems.	**SE/TE: 290-296, 299-300**		
e. Identify medians, altitudes, and angle bisectors of a triangle, and the perpendicular bisectors of the sides of a triangle, and justify the concurrency theorems.	**SE/TE: 265-279, 298, 300**		
Objective 1.4: Analyze characteristics and properties of polygons and circles.			
a. Use examples and counterexamples to classify subsets of quadrilaterals.	**SE/TE: 306-311, 357, 360**		
b. Prove properties of quadrilaterals using triangle congruence relationships, postulates, and theorems.	**SE/TE: 312-319, 358, 360**		
c. Derive, justify, and use formulas for the number of diagonals, lines of symmetry, angle measures, perimeter, and area of regular polygons.	**SE/TE: 156-164, 191-192**		
d. Define radius, diameter, chord, secant, arc, sector, central angle, inscribed angle, and tangent of a circle, and solve problems using their properties.	**SE/TE: 566-573, 591-592**		

e. Show the relationship between intercepted arcs and inscribed or central angles, and find their measures.	**SE/TE: 678-694, 708-710**		
Objective 5: Perform basic geometric constructions, describing and justifying the procedures used.			
a. Investigate geometric relationships using constructions.	**SE/TE: 44-51, 73-74**		
b. Copy and bisect angles and segments.	**SE/TE: 44-51, 73-74**		
c. Construct perpendicular and parallel lines.	**SE/TE: 126, 181-187, 191-192**		
d. Justify procedures used to construct geometric figures.	**SE/TE: 44-51, 73-74**		
e. Discover and investigate conjectures about geometric properties using constructions.	**SE/TE: 44-51, 73-74**		
Objective 6: Analyze characteristics and properties of three-dimensional figures.			
a. Identify and classify prisms, pyramids, cylinders and cones based on the shape of their base(s).	**SE/TE: 608-623, 654, 656**		
b. Identify three-dimensional objects from different perspectives using nets, cross-sections, and two-dimensional views.	**SE/TE: 598-607, 653, 656**		
c. Describe the symmetries of three-dimensional figures.			
d. Describe relationships between the faces, edges, and vertices of polyhedra.	**SE/TE: 598-607, 653, 656**		

STANDARD II: Students will use the language and operations of algebra to explore geometric relationships with coordinate geometry.			
Percentage of coverage in the *student and teacher edition* for Standard II: <u>100</u> %		**Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard II: N/A**	
OBJECTIVES & INDICATORS	**Coverage in *Student Edition(SE)* and *Teacher Edition (TE)* (pg #'s, etc.)**	**Coverage in *lary Material* (titles, pg #'s, etc.)**	*Not covered in TE, SE or ancillaries*
Objective 2.1: Describe the properties and attributes of lines and line segments using coordinate geometry.			
a. Verify the classifications of geometric figures using coordinate geometry to find lengths and slopes.	**SE/TE: 306-311, 357-358, 360**		
b. Find the distance between two given points and find the coordinates of the midpoint.	**SE/TE: 52-60, 73-74**		
c. Write an equation of a line perpendicular or a line parallel to a line through a given point.	**SE/TE: 174-180, 191-192**		
Objective 2.2: Describe spatial relationships using coordinate geometry.			
a. Graph a circle given the equation in the form, and write the equation when given the graph. $_{222}$)()($rkyhx$=−+−	**SE/TE: 695-700, 709-710**		
b. Determine whether points in a set are collinear.	**SE/TE: 17-22, 72, 74**		

STANDARD III: Students will extend concepts of proportion and similarity to trigonometric ratios.			
Percentage of coverage in the *student and teacher edition* for Standard III: <u>100</u> %		**Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard III: N/A**	
OBJECTIVES & INDICATORS	**Coverage in *Student Edition(SE)* and *Teacher Edition (TE)* (pg #'s, etc.)**	**Coverage in *ancillary Material* (titles, pg #'s, etc.)**	*Not covered in TE, SE or ancillaries*
Objective 3.1: Use triangle relationships to solve problems.			
a. Solve problems using the properties of special right triangles, e.g., 30°, 60°, 90° or 45°, 45°, 90°.	**SE/TE: 425-460, 461-462, 464**		
b. Identify the trigonometric relationships of sine, cosine, and tangent with the appropriate ratio of sides of a right triangle.	**SE/TE: 431-443, 462, 464**		
c. Express trigonometric relationships using exact values and approximations.	**SE/TE: 431-443, 462, 464**		
Objective 3.2: Use the trigonometric ratios of sine, cosine, and tangent to represent and solve for missing parts of triangles.			
a. Find the angle measure in degrees when given the trigonometric ratio.	**SE/TE: 431-443, 462, 464**		
b. Find the trigonometric ratio given the angle measure in degrees, using a calculator.	**SE/TE: 431-443, 462, 464**		

	Coverage in *Student Edition(SE) and Teacher Edition (TE) (pg #'s, etc.)*		
c. Find unknown measures of right triangles using sine, cosine, and tangent functions and inverse trigonometric functions.	**SE/TE: 431-443, 462, 464**		

STANDARD IV: Students will use algebraic, spatial, and logical reasoning to solve measurement problems.

Percentage of coverage in the *student and teacher edition* for Standard IV: <u>100</u> %		**Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard IV: N/A**	
OBJECTIVES & INDICATORS	**Coverage in *Student Edition(SE) and Teacher Edition (TE) (pg #'s, etc.)***	**Coverage in *llary Material* (titles, pg #'s, etc.)**	*Not covered in TE, SE or ancillaries*
Objective 4.1: Find measurements of plane and solid figures.			
a. Find linear and angle measures in real-world situations using appropriate tools or technology.	**SE/TE: 156**		
b. Develop surface area and volume formulas for polyhedra, cones, and cylinders.	**SE/TE: 608-637, 653-656**		
c. Determine perimeter, area, surface area, lateral area, and volume for prisms, cylinders, pyramids, cones, and spheres when given the formulas.	**SE/TE: 608-644, 653-656**		
d. Calculate or estimate the area of an irregular region.	**SE/TE: 64-69, 73-74**		
e. Find the length of an arc and the area of a sector when given the angle measure and radius.	**SE/TE: 569-581, 591-592**		

Objective 4.2: Solve real-world problems using visualization and spatial reasoning.			
a. Solve problems using the Pythagorean Theorem and its converse.	**SE/TE: 416-424, 461, 464**		
b. Solve problems using the distance formula.	**SE/TE: 53-60, 73-74**		
c. Solve problems involving trigonometric ratios.	**SE/TE: 432-451, 462-464**		
d. Solve problems involving geometric probability.	**SE/TE: 582-587, 591-592**		